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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/224,696	01/04/1999	CASSONDRA L. CROTTY	BU9.97.226	3386

7590 02/23/2005

KEVIN R. CASEY  
RATNER & PRESTIA  
ONE WESTLAKES BERWYN P O BOX 980  
SUITE 301  
VALLEY FORGE, PA 194820980

EXAMINER

HARRISON, CHANTE E

ART UNIT PAPER NUMBER

2675

DATE MAILED: 02/23/2005

35

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/224,696

Applicant(s)

CROTTY ET AL.

Examiner

Chante Harrison

Art Unit

2675

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 September 2003.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-6,8-10,12-14 and 16-20 is/are pending in the application.  
4a) Of the above claim(s) 3,7,11 and 16 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1,2,5,6,8-10,13,14 and 17-20 is/are rejected.  
7) ☒ Claim(s) 4,8,12 and 16 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

1. This action is responsive to communications: Appeal Brief filed on 9/12/03.
2. Claims 1-20 are pending in the case. Claims 1-2, 5-6, 9-10 and 13-14 are independent claims. Claims 3, 7, 11 and 15 have been previously cancelled. The previous Amendment C added claims 17-20.
3. In view of the appeal brief filed on 9/12/03, PROSECUTION IS HEREBY REOPENED. A new ground of rejection is set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

- (1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,
- (2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1, 2, 5, 6, 9, 10, 13, 14 and 17-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Independent claims 1, 2, 5, 6, 9, 10, 13 and 14 include a "mathematical matrix" and dependent claims 17-20 include a "mathematical model", neither of which are supported by the Applicants specification. The Examiner's position regarding the claim references to a "mathematical matrix" is provided below in the Response to Arguments. With regard to the claim references to a "mathematical model", the Applicants specification (pp. 2, II. 27-30) supports that physical systems may be modeled using many numerical methods, such as reordering and substitution, and structural characteristics of the system being modeled.

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 5-7, 9-11 and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schwuttke et al., U.S. Patent 6,222,547, 4/2001, 345/440.

As per independent claim 1, Schwuttke discloses generating a grid based on a plurality of data values (col. 6-7, ll. 63-5), associating each data value with a geometric shape according to a predetermined set of rules (col. 6, ll. 29-34; col. 7, ll. 10-27), placing the shapes on the grid (col. 7, ll. 20-24) and displaying visual and geometric information placed on the grid in graphical form (FIGS. 4-7).

Schwuttke fails to specifically disclose extracting a plurality of data values associated with a mathematical matrix.

It would have been obvious to one of ordinary skill in the art to incorporate extracting a plurality of data values associated with a mathematical matrix with the disclosure of Schwuttke. One of skill in the art would have been motivated to incorporate extracting a plurality of data values associated with a mathematical matrix with the disclosure of Schwuttke because Schwuttke discloses extracting telemetry data that includes data relative to a type of subsystem, e.g. electrical, (col. 7, ll. 15-18, 23-26), and may include a tracking of battery voltages (e.g. voltage is the mathematical product of a one by one matrix involving resistance and current) (col. 9, ll. 10-16) determined as a result of numerical operations associated with a mathematical matrix.

As per independent claim 2, Schwuttke discloses identifying a plurality of numerical attributes associated with each data value (FIG. 2; col. 6, ll. 8-29; col. 7, ll. 3-5, 11-18) and associating each numerical attribute with a visual attribute (col. 7, ll. 3-5, 11-18). The rejection as applied to claim 1 is included herein.

As per independent claims 5 and 9, Schwuttke discloses a computer usable medium having code for implementing the method of claim 1 (col. 5, ll. 37-45). Thus the rejection as applied to claim 1 is included herein.

As per independent claims 6 and 10, Schwuttke discloses a computer usable medium having code for implementing the method of claim 2 (col. 5, ll. 37-45). Thus the rejection as applied to claim 2 is included herein.

As per independent claim 13, Schwuttke discloses a storage device having instructions for implementing the method of claim 1 (col. 5, ll. 37-45). Thus the rejection as applied to claim 1 is included herein.

As per independent claims 14, Schwuttke discloses a storage device having instructions for implementing the method of claim 2 (col. 5, ll. 37-45). Thus the rejection as applied to claim 2 is included herein.

As per dependent claims 17-20, Schwuttke discloses the data arrays of the plurality of data values are the data arrays of mathematical models of systems (i.e. the data arrays represent data values acquired from a simulation of the disclosed system;

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where the simulation includes data, e.g. battery voltages, obtained from associated mathematical matrices) (Fig. 7).

Claims 4, 8, 12 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

1. Applicant's arguments filed 9/12/03 have been fully considered but they are not persuasive.

***a) The Specification Lacks Support for the claim phrase "mathematical matrix"***

The claim phrase "mathematical matrix" is rejected as new matter due to insufficient support in the specification. Additionally, Appellant argues that the term is either disclosed expressly or inherently, but does not mention the phrase "mathematical matrix" in the specification. Appellant presently argues (Brief: pp. 9, Para 1) that the phrase "mathematical matrix" is represented in the specification as both a dense array and an algebraic array. However, because the Appellant in previous arguments to an office action, indicated that the "matrix" as disclosed in the prior art and interpreted by the Office based on the dictionary definition of an array did not correspond to a "mathematical matrix" as claimed due to the absence of numerical operations a new matter issue resulted. Appellant's failure to explicitly define the phrase "mathematical matrix", introduces new matter.

***b) The Schwuttke et al. patent renders obvious the pending claims***

Appellant admits (Brief: pp. 11, Para 2) Schwuttke et al. discloses the display of data in the form of graphic symbols, where the data is representative of "telemetry data" (i.e. transmitted measured quantities of data). Appellant acknowledges that the matrix data of the present application can be reasonably substituted for the dictionary definition



of the word "matrix" (Brief: pp. 10, Para 1). Schwuttke discloses objects representing data parameters, where the objects are relative to a type of subsystem (i.e. electrical) (col. 7, ll. 15-18, 23-26). Schwuttke further discloses objects represent telemetry data (col. 7, ll. 55-60), where the telemetry data may include a tracking of battery voltages (e.g. voltage is the mathematical product of a one by one matrix involving resistance and current) (col. 9, ll. 10-16). As admitted by Applicant's specification (pp. 13, ll. 8-12), voltage is a function of resistance and current and is determined by numerical operations via a mathematical matrix. Therefore, Schwuttke discloses an array of data values associated with a mathematical matrix because he teaches recording data values associated with voltages, which are determined as a result of numerical operations, extracts the recorded data values (i.e. telemetry data), represents the recorded data values as objects (i.e. geometrical objects) (Fig. 5A) and displays the geometrical objects (Fig. 6).

Appellant identifies the disclosure of Schwuttke et al. as a completely different field of invention from the current application. However, the present application fails to claim a method and apparatus for **solving** mathematical equations expressed in the form of a mathematical matrix. In contrast the application presently claims representing and displaying data associated with a mathematical matrix as graphic objects, which Schwuttke also teaches.

Appellant further identifies Schwuttke et al. as failing to teach extracting data from a mathematical matrix. Schwuttke et al. teach associating telemetry data (i.e. transmitted numerical data derived from matrix operations: e.g. voltage) with a graphic object based on the type, quality and other attributes of data (col. 7, ll. 10-16), as does the Appellant's specification, which discloses associating graphic objects with numerical data based on attributes of the numerical data (Specification: pp. 7, Para 2).

Appellant argues that the Office identified the "mathematical matrix" limitation as distinguishing over the cited reference. Based upon Appellant's subsequent arguments to previous Office Actions rejecting the limitation, the limitation was previously identified as a distinguishing element over the prior art. However, upon further examination of the Application and the cited reference, it was concluded that the "mathematical matrix" limitation did not distinguish over the prior art; and the previous rejection in view of the cited art was subsequently maintained. Additionally, the subsequent after final amendment that incorporated the limitation in the independent claims was **not** entered; and the subsequent Final Office Action addressed all claims, inclusive of those claims lacking the limitation. Therefore, the Examiner asserts that substantive patentability does not hinge on the "new matter" objection; and Schwuttke anticipates the claims.

***c) The Schwuttke et al. patent fails to render obvious the subject matter recited in the pending claims. Therefore, claims 4, 8, 12 and 16 are objected.***

***Conclusion***

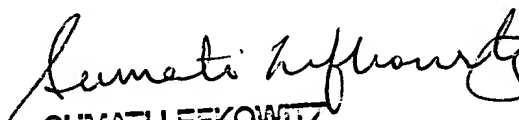
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chante Harrison whose telephone number is 703-305-3937. The examiner can normally be reached on Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Razavi can be reached on 703-305-4713. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chante Harrison  
Examiner  
Art Unit 2672

ceh

  
SUMATI LEFKOWITZ  
PRIMARY EXAMINER

<b>Interview Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/224,696	CROTTY ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Chante Harrison	2672	

All participants (applicant, applicant's representative, PTO personnel):

- (1) Chante Harrison. (3) \_\_\_\_.
- (2) Lynn Denitz. (4) \_\_\_\_.

Date of Interview: 04 March 2004.

Type: a) ☒ Telephonic b) ☐ Video Conference  
c) ☐ Personal [copy given to: 1) ☐ applicant 2) ☐ applicant's representative]

Exhibit shown or demonstration conducted: d) ☐ Yes e) ☐ No.  
If Yes, brief description: \_\_\_\_.

Claim(s) discussed: \_\_\_\_.

Identification of prior art discussed: \_\_\_\_.

Agreement with respect to the claims f) ☒ was reached. g) ☐ was not reached. h) ☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Examiner indicated that the notice of a defective appeal brief would be rescinded and a new office action issued, as a result of entering Amendment C.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN ONE MONTH FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

  
Examiner's signature, if required

## Summary of Record of Interview Requirements

### Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

### Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews

#### Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

#### 37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,  
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

### Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.